

AMENDMENT AND RESPONSE TO OFFICIAL ACTION

Applicant: Tyler E. PEASE
Serial No.: 09/649,692
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Group No.: 3635
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IN THE CLAIMS:

Please amend Claims 1, 3-6, 9-11 and 13, and insert new Claims 21-33 as follows:

1 1. (Amended) An insulated wall panel, comprising:
2 a rigid foam sheet with first and second planar sides and having first and
3 second grooves extending substantially the full length of the sheet in a substantially
4 parallel orientation in the first side of the sheet and first and second opposing edges
5 generally parallel to the first and second grooves;
6 a first reinforcing strip having a length, a top and a bottom with the bottom
7 being disposed in the first groove and the top facing outwardly away from the first
8 groove, wherein the first strip extends substantially the full length of the sheet and
9 disposed in said sheet inwardly away from the first and second edges of the sheet;
10 a second reinforcing strip having a length, a top and a bottom with the
11 bottom being disposed in the second groove and the top facing outwardly away from the
12 second groove, wherein the second strip extends substantially the full length of the sheet
13 and is disposed in said sheet inwardly away from the first and second edges of the sheet;
14 a first thin reinforcing layer bonded to the first planar side of the sheet,
15 and extending across the top of the first and second grooves and substantially covering
16 the entire first planar side of the sheet; and
17 a second thin reinforcing layer bonded to the second planar side of the
18 sheet and extending across substantially an entire surface of second planar side.

1 3. (Amended) An insulated wall panel, comprising:
2 a rigid foam sheet with first and second planar sides and having first and
3 second grooves extending substantially the full length of the sheet in a substantially
4 parallel orientation in the first side of the sheet;

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5 a first reinforcing strip having a length, a top and a bottom with the bottom
6 being disposed in the first groove and the top facing outwardly away from the first
7 groove, wherein the first strip extends substantially the full length of the sheet;

8 a second reinforcing strip having a length, a top and a bottom with the
9 bottom being disposed in the second groove and the top facing outwardly away from the
10 second groove, wherein the second strip extends substantially the full length of the sheet;

11 a first thin reinforcing layer bonded to the first planar side of the sheet,
12 and extending across the top of the first and second grooves and substantially covering
13 the entire first planar side of the sheet; and

14 a second thin reinforcing layer bonded to the second planar side of the
15 sheet and extending across substantially an entire surface of second planar side, wherein
16 the bottoms of the first and second strips each have two downwardly extending flanges
17 that are oriented substantially perpendicular to the first planar side, and further wherein
18 the top of the first and second reinforcing strips are mechanically textured over the length
19 of the first and second strips to provide an improved gripping surface for drills and self
20 tapping screws.

1 4. (Amended) An insulated wall panel, comprising:

2 a rigid foam sheet with first and second planar sides and having first and
3 second grooves extending substantially the full length of the sheet in a substantially
4 parallel orientation in the first side of the sheet;

5 a first reinforcing strip having a length, a top and a bottom with the bottom
6 being disposed in the first groove and the top facing outwardly away from the first
7 groove, wherein the first strip extends substantially the full length of the sheet;

8 a second reinforcing strip having a length, a top and a bottom with the
9 bottom being disposed in the second groove and the top facing outwardly away from the
10 second groove, wherein the second strip extends substantially the full length of the sheet;

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Sub B1
11 a first thin reinforcing layer bonded to the first planar side of the sheet,
12 and extending across the top of the first and second grooves and substantially covering
13 the entire first planar side of the sheet; and

14 a second thin reinforcing layer bonded to the second planar side of the
15 sheet and extending across substantially an entire surface of second planar side, wherein
16 the bottoms of the first and second strips each have two downwardly extending flanges
17 that are oriented substantially perpendicular to the first planar side, and further wherein
18 the top of the first and second reinforcing strips have a plurality of holes spaced apart at
19 predetermined intervals along the length of the first and second reinforcing strips.

76 cont'd
1 5. (Amended) An insulated wall panel, comprising:

2 a rigid foam sheet with first and second planar sides and having first and
3 second grooves extending substantially the full length of the sheet in a substantially
4 parallel orientation in the first side of the sheet;

5 a first reinforcing strip having a length, a top and a bottom with the bottom
6 being disposed in the first groove and the top facing outwardly away from the first
7 groove, wherein the first strip extends substantially the full length of the sheet;

8 a second reinforcing strip having a length, a top and a bottom with the
9 bottom being disposed in the second groove and the top facing outwardly away from the
10 second groove, wherein the second strip extends substantially the full length of the sheet;

11 a first thin reinforcing layer bonded to the first planar side of the sheet,
12 and extending across the top of the first and second grooves and substantially covering
13 the entire first planar side of the sheet; and

14 a second thin reinforcing layer bonded to the second planar side of the
15 sheet and extending across substantially an entire surface of second planar side, wherein
16 the bottoms of the first and second strips each have two downwardly extending flanges
17 that are oriented substantially perpendicular to the first planar side, and further wherein

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18 the top of the first and second reinforcing strips have a plurality of slots spaced apart at
19 predetermined intervals along the length of the first and second reinforcing strips.

1 6. (Amended) The insulated wall panel of any of Claims 3, 4 or 5,
2 wherein the first reinforcing layer is bonded to the rigid foam sheet to enclose the first
3 and second reinforcing strips and define a first vapor barrier across substantially the
4 entire first side of the sheet.

1 9. (Amended) The insulated wall panel of Claim 8, An insulated wall
2 panel, comprising:
3 a rigid foam sheet with first and second planar sides and having first and
4 second grooves extending substantially the full length of the sheet in a substantially
5 parallel orientation in the first side of the sheet;
6 a first reinforcing strip having a length, a top and a bottom with the bottom
7 being disposed in the first groove and the top facing outwardly away from the first
8 groove, wherein the first strip extends substantially the full length of the sheet;
9 a second reinforcing strip having a length, a top and a bottom with the
10 bottom being disposed in the second groove and the top facing outwardly away from the
11 second groove, wherein the second strip extends substantially the full length of the sheet;
12 a first thin reinforcing layer bonded to the first planar side of the sheet,
13 and extending across the top of the first and second grooves and substantially covering
14 the entire first planar side of the sheet; and
15 a second thin reinforcing layer bonded to the second planar side of the
16 sheet and extending across substantially an entire surface of second planar side, wherein
17 the bottoms of the first and second strips each have two downwardly extending flanges
18 that are oriented substantially perpendicular to the first planar side, wherein the first
19 reinforcing layer is bonded to the rigid foam sheet to enclose the first and second
20 reinforcing strips and define a first vapor barrier across substantially the entire first side

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21 of the sheet, wherein the second reinforcing layer is bonded to the rigid foam sheet to
22 define a second vapor barrier across substantially the entire second side of the sheet,
23 wherein the first and second reinforcing layers have a tensile strength at least 100 times
24 as great as the tensile strength of the foam sheet, and wherein a first portion of the first
25 reinforcing layer extending across the top of the first reinforcing strip is placed in tension
26 when the panel is bent away from the first reinforcing strip before the foam sheet will
27 fracture at the first groove.

1 10. (Amended) An insulated wall panel, comprising:
2 a rigid foam sheet with first and second planar sides and having first and
3 second grooves extending substantially the full length of the sheet in a substantially
4 parallel orientation in the first side of the sheet;
5 a first reinforcing strip having a length, a top and a bottom with the bottom
6 being disposed in the first groove and the top facing outwardly away from the first
7 groove, wherein the first strip extends substantially the full length of the sheet;
8 a second reinforcing strip having a length, a top and a bottom with the
9 bottom being disposed in the second groove and the top facing outwardly away from the
10 second groove, wherein the second strip extends substantially the full length of the sheet;
11 a first thin reinforcing layer bonded to the first planar side of the sheet,
12 and extending across the top of the first and second grooves and substantially covering
13 the entire first planar side of the sheet; and
14 a second thin reinforcing layer bonded to the second planar side of the
15 sheet and extending across substantially an entire surface of second planar side, wherein
16 the bottoms of the first and second strips each have two downwardly extending flanges
17 that are oriented substantially perpendicular to the first planar side, wherein the first
18 reinforcing layer is bonded to the rigid foam sheet to enclose the first and second
19 reinforcing strips and define a first vapor barrier across substantially the entire first side
20 of the sheet, wherein the second reinforcing layer is bonded to the rigid foam sheet to

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21 define a second vapor barrier across substantially the entire second side of the sheet,
22 wherein the first and second reinforcing layers have a tensile strength at least 100 times
23 as great as the tensile strength of the foam sheet, and wherein a second portion of the
24 first reinforcing layer extending across the top of the second reinforcing strip is placed in
25 tension when the panel is bent away from the second reinforcing strip before the foam
26 sheet will fracture at the second groove.

7
A contd
1 11. (Amended) A method of manufacturing an insulated wall panel,
2 comprising the steps of:
3 creating a rigid foam block having first and second opposing sides;
4 cutting the foam block to form a plurality of stacked individual foam
5 sheets having first and second sides and a plurality of parallel recesses in the first side;
6 inserting a reinforcing strip having a top and a bottom into each of the
7 plurality of recesses in each of the plurality of sheets, wherein the reinforcing strip has a
8 surface finish including at least a mechanically textured top surface, a plurality of spaced
9 apart holes or a plurality of spaced apart slots configured to engage mechanical fasteners ;
10 covering the tops of each of the reinforcing strips with a first thin reinforcing
11 layer; and
12 bonding the first reinforcing layer to the first side of each of the foam
13 sheets.

A 8 581
1 13. (Amended) A method of manufacturing an insulated wall panel,
2 comprising the steps of:
3 creating a rigid foam block having first and second opposing sides;
4 cutting the foam block to form a plurality of stacked individual foam
5 sheets having first and second sides and a plurality of parallel recesses in the first side;
6 inserting a reinforcing strip having a top and a bottom into each of the
7 plurality of recesses in each of the plurality of sheets;

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8 covering the tops of each of the reinforcing strips with a first thin
9 reinforcing layer;
10 bonding the first reinforcing layer to the first side of each of the foam
11 sheets; and
12 bonding a second reinforcing layer to the second side of each of the foam
13 sheets;
14 wherein the step of cutting the foam block includes the steps of:
15 drawing a hotwire frame of substantially equally spaced parallel hot wires
16 through the block from the first side to the second opposing side of the block;
17 simultaneously forming each of the plurality of grooves in the block with
18 each of the hot wires in the of the hotwire frame; and
19 completing a path through the block by substantially simultaneously
20 separating the block into the plurality of sheets.

1 21. (New) The insulated wall panel of Claim 1, wherein the first and second
2 reinforcing strips include a central recessed portion configured to receive and support the
3 head of a fastener.

1 22. (New) The insulated wall panel of Claim 21, further comprising a
2 plurality of fasteners coupled to the central recessed portion of both the first and second
3 reinforcing strips.

1 23. (New) The insulated wall panel of Claim 21, wherein the first and second
2 reinforcing strips include two non recessed portions that flank the recessed portion and
3 extending substantially the entire length of the respective first and second reinforcing
4 strips.

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SUB 1
1 24. (New) The insulated wall panel of Claim 23, further comprising a
2 plurality of headed fasteners having a head that is supported in the recessed portion and a
3 shank that extends through the recessed portion.

1 25. (New) The insulated wall panel of Claim 1 wherein an outwardly facing
2 surface of the first and second reinforcing strips is configured to guide the insertion of a
3 fastener therethrough.

1 26. (New) The insulated wall panel of Claim 25, wherein the outwardly
2 facing surface is configured with a surface texture that guides the insertion of a fastener
3 therethrough.

AG Cont'd
1 27. (New) The insulated wall panel of Claim 25, wherein the outwardly
2 facing surface is configured with apertures that guide the insertion of a fastener
3 therethrough.

1 28. (New) The insulated wall panel of Claim 1, wherein the rigid foam sheet
2 has a second side opposite the first side that has no reinforcing strips.

1 29. (New) The insulated wall panel of Claim 1, wherein lateral sides of the
2 first and second reinforcing strips are spaced at least 6 inches away from the lateral edges
3 of the rigid foam sheet.

1 30. (New) The insulated wall panel of Claim 29, wherein the first and second
2 reinforcing strips are generally spaced 12 inches apart.